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By-Cohen, S. Alan

RESEARCH AND TEACHING READING TO DISADVANTAGED LEARNERS: IMPLICATIONS FOR FURTHER RESEARCH AND PRACTICE.

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Research on the teaching of reading to disadvantaged children often places too much emphasis on etiology rather than on pedagogy. The student's behavior, not the etiology, is the key to change. Suggestions that disadvantaged children have initial reading problems because of auditory, vocabulary, and visual discrimination deficits or articulatory problems are questionable because early reading vocabulary is quite limited, and existing discrimination problems are quickly alleviated by thorough sequential instructions. Also, research evidence indicates that slow learners are often concrete, motoric learners. Apparently average and above average disadvantaged children do not display this type of learning. Teachers have a major influence on the student's success in reading. Therefore, in addition to pedagogical treatments, the specific operants that discriminate good from mediocre and poor teachers must be isolated. Specific student behavioral deficits and strengths in reading when matched to teacher characteristics can produce a new concept in pedagogy. (BS)

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S. Alan Cohen, Ed.D
Associate Professor of Education
Director, Reading and Language Arts Center
Graduate School, Yeshiva University
55 Fifth Avenue
New York, New York

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RESEARCH AND TEACHING READING TO DISADVANTAGED LEARNERS: IMPLICATIONS FOR FURTHER RESEARCH AND PRACTICE

INTRODUCTION

What does the available research on teaching reading to disadvantaged children tell us? Where do we go from here? Briefly:

(1) In general most research reports on the reading of disadvantaged children tells us what we already know. What we already know is not very much and certainly not very helpful if you are a reading teacher at PS 129 in Bedford Stuyvesant.

(2) Research techniques in this area are unsophisticated, often sloppy and ambiguously reported. Worse yet, these researches seem to ask the wrong questions, which in our trade, is a hell of a sure way of not solving our problems

(3) Let's stop barking up wrong trees and get to the roots of the educational problem. ~~For professional educators, like to look~~. The educator's primary domain is the classroom, and that is where he should first seek the the roots of his problems. Educators are so busy looking at environmental etiologies that they have conveniently and, I think, purposely swept their own pedagogical inadequacies under the rug. If the research reviewed by Dr. Webster* tells us anything, it tells us that now is the time to get under the rug.

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> This means a radical re-evaluation of educational causes and effects from the educator's point of view, which leads to a radical restructuring of the types of research questions we must ask. And this, in turn, leads to a reevaluation of the research designs we employ to ask these questions.

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*For the sake of consistency, the research discussed below approximates the scope and sequence covered in Dr. Staten Webster's excellent review of the research: "Research in Teaching Reading to Disadvantaged Learners: A Critical Review and Evaluation of Research," that preceded this paper.

GENERAL CONCLUSIONS FROM THE RESEARCH AND THEIR IMPLICATIONS

Are the research findings and conclusions reliable and if so, so what?

Stimulus Deprivation and Cumulative Deficit Phenomenon: If any child of any socioeconomic level is behind in school achievement in grade one, he will either catch up or fall further behind, depending upon such circumstances as the effectiveness of the school's remedial or compensatory education program. He cannot maintain a consistent deficit because of the telescoping effect of the school curriculum from primary through secondary levels. Deutsch calls this the "cumulative deficit phenomenon." (8) The phenomenon existed long before Deutsch discovered Black kids in Harlem. Deutsch has called it to our attention with his new term, and this has resulted in a variety of efforts to remediate problems early and, in some cases, to prevent problems from occurring.

To remediate these problems, we must know what problems to look for. So, Deutsch postulates two types of basic learning problems: deficits in formal operations and deficits in the contentual dimension (9). If any child of any socioeconomic level is not learning well in school, either he lacks the basic operations necessary to learn, or he has not been able to use them to gain information or skills he needs to respond appropriately to stimuli thrown at him by the school. Or he may suffer from a combination of both, of course.

These terms are hypothetical constructs, not real operants. What is important is to recognize that the hypothetical constructs Deutsch uses to categorize the deficiencies of underachieving kids from Boston's Black ghetto are no different from the hypothetical constructs used to categorize the deficiencies of underachieving kids from the White upward striving ghetto of Wayland, Massachusetts. These constructs give us a convenient guideline for diagnosing: 'Is this underachiever's problem primarily in formal operations or in the contentual dimension?' And even more important, in formulating these constructs, Deutsch has raised the following issue: 'If a large group of underachievers lacks formal operations at school input, do we wait for social revolution to give us a society that shapes formal operations in their children? Or can the school shape these formal operations without waiting for social revolution?'

Deutsch's categories raise further questions. The term, formal operations, is too general for the learning psychologist who must design strategies for developing these operations. Research needs to be designed to pinpoint exactly what operants are included in this category. What kinds of sensory inputs provide the formal operations that underly learning? Are they the visual perceptual inputs suggested by Mc V. Hunt (13)? Are they the language stimuli suggested by the Bereiter-Englemann experiments (1)? More important to us, perhaps, is the following question: Which formal operations have direct payoff in reading achievement? Some of the specific operants that we think make up the formal operations do not seem to be related to reading except in the most indirect manner. Cohen (6) discusses this in his study which showed very little overlap between visual perceptual functioning and reading achievement in junior high school disadvantaged children. These formal operations, however, overlapped with measured intelligence, suggesting that at least in this sense, they were operants in what Deutsch calls formal operations.

Thus, research has not satisfactorily pinpointed the operants in this hypothetical construct of formal operations. But even more important, perhaps, is the possibility that educators in reading research are not even asking questions about these operants. For example, Wolfe's studies of Headstart suggest that the school did not provide the specific operants necessary to prepare ghetto children for the first grade (25). Most Headstart programs never really confronted the researchable question: Can the school provide the formal operations missed by these deprived preschoolers? If they had done so, they would have been forced by the measuring demands of a research project to define specifically the formal operations they wanted to shape. Except for the Englemann-Bereiter work, little has been done in this area.

Deficits in Auditory and Visual Discrimination: Webster cites six sources that note children from low socioeconomic strata (SES) score low on auditory discrimination. He cites two sources that conclude that low SES children have poorly developed visual discrimination, visual spatial organization and form discrimination. Some of the researchers strain very hard to explain the etiologies of the auditory deficits. Such explanations range from 'large family size minimizes the amount of adult-to-child verbal interaction' to 'large family size causes noisy, overcrowdedness causing children to tune out conversation.' The visual perceptual deficits are explained usually by the lack of opportunity theory or by the lack of adult-child interaction theory or even by the higher incidence of brain damage amongst lower SES children (18).

Certainly, low SES goes with low school achievement. Low school achievement goes with low reading. And poor visual and auditory discrimination go with poor reading. The latter correlations are found in equal abundance among all retarded readers, middle or low SES. What is questionable is the line of research that tries to track down the etiologies of these visual and auditory deficits under the assumption that they are possible causes of reading retardation. First, we must question the assumption that poor auditory discrimination is as significant in reading retardation as we used to believe (10). It is further possible that good phonics instruction, which is part of good reading instruction, can reach children to discriminate sounds in words. Second, we must question some of these absurd guesses about etiology not only on grounds of their validity -- for most of these guesses are purely conjectural -- but also on grounds of usefulness. These types of etiological explanations have very little relevance to the real world of human engineering that educators, whether they admit it or not, have committed themselves to. Educators can do very little about the decibel level of overcrowded tenement apartments.

As for visual perceptual problems in disadvantaged populations, our own studies found a shockingly high incidence and severity of incidence in elementary school children (7), (4). But in the three years since these studies, we have not been able to establish any case for assuming that these dysfunctions prevent children from reading. In fact, all our work indicates that we can train these children to discriminate letters and letter direction in spite of their so-called dysfunctions. Furthermore, we find that some of these dysfunctions disappear as they learn to read as Grace Fernald suggested twenty-five years ago (11). This leads to the second question: So what?

So what if these children do have auditory and visual deficits? Do these deficits prevent them from learning to read? The research certainly does not establish this affirmatively. In fact we have always known that a significant number of perceptually dysfunctioning children learn to read adequately in spite of their dysfunctions. If a child does not discriminate the difference between the sounds of pit and pet, can we not teach it to him? In one study four years ago we taught disadvantaged, underachieving fourth graders on New York's Lower East Side to discriminate sounds in words (14). They displayed excellent learning curves in fifteen minutes per minimally paired, contrasted sounds. In another project now underway, we have used taped exercises with structured response sheets to accomplish a similar goal with underachieving disadvantaged boys who cannot hear sounds in words on pretests similar to the Wepman test (22). In this project we teach the phoneme-grapheme relationship simultaneous to the auditory discrimination of the target sounds. And this year in the clinic, at the Graduate School, Yeshiva University Reading and Language Arts Center, and in first and second grade classrooms in the South Bronx, our graduate students have been using the auditory discrimination module from Donald Smith's Michigan Language Program* with great success.

The same results in visual discrimination and visual memory of letters, words and phrases come from tachistoscopic training, alphabet games, alphabet form boards and various published materials that have long been available on the education market. From all our work in teaching reading to disadvantaged children, it appears that most children, disadvantaged or not, who have auditory or visual perceptual deficits respond to thorough, sequential instruction. From this point of view the etiology is not significant.

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* Ann Arbor Publishers, Ann Arbor, Michigan

What if the incidence of minimal brain damage is higher in the neenates of low SES mothers? These children may or may not manifest visual confusions of c-e-o-a, or p-b-d-q reversals, or was-saw reversals. And a little bit of thorough instruction seems to take care of most of these problems. If the tenement apartment is so noisy that José ends up in fifth grade not hearing the difference between pill and bill, this may interfere with his learning how to bust the written code. But if his K-1 teachers had provided him with thorough discrimination training, he might not be having this problem in grade five.

The implications for educational research seem clear. The problem is not one of research design: it is a question of what to research first. And the argument presented here indicates that instructional media and strategies, not etiologies such as decibel levels of low SES homes or parent-child interaction in Watts, is the first priority of educational research.

Vocabulary Deficits and Articulatory Problems: Webster cites at least seven sources that indicate significantly lower vocabularies in disadvantaged children. That this is due to less parent-child verbal interaction during preschool years is less validated but, nevertheless, likely. How relevant is this deficit for beginning reading? How much oral and conceptual vocabulary does a child need to master Dick, Sally and Spot? Most urban disadvantaged children seem to have enough vocabulary to master the primers at least up to grade three. Yet, the reading retardation rate is already high amongst these children at the primary level. Obviously vocabulary deficit is not a significant causal factor of reading retardation at this stage. Later in the grades, when poor vocabulary does become an impediment to reading success, the problem to be researched is not etiology. Once again it is strategy and media. How can we best teach vocabulary? Which vocabulary should we teach? These are the educator's researchable problems.

Some wild tales have been going around ghetto schools about the relevancy of misarticulation in oral language and reading. The fact is, very little evidence exists that output (articulation) is directly linked to input (hearing sounds in words). Does the Black child's muvver mean that he cannot hear the th sound in mother? It may. One research just finished at the Reading and Language Arts Center, Yeshiva University, does show that the seven sounds most often misarticulated by Negro children are also most often missed on a paired-associates auditory discrimination test (12). But the generalization from these findings is muddied when we look at other sounds beyond these seven. Negro fourth graders may also misarticulate sounds other than these seven, but they have little trouble discriminating them auditorily. In a second study at the Center, ethnolinguistic category, not SES, was the factor most associated with , auditory discrimination. when measured by a phoneme-grapheme correspondence test of nonsense words (20).

Before further research is done in the relationship of articulation to auditory discrimination of disadvantaged children, we must do two things: (1) establish that auditory discrimination is crucial to success in reading. (2) Ask, "So what?" If children articulate in a particular ethnolinguistic style relative to a specific social context (16), (17), (and all children certainly do), this may effect the teacher's perceptions of the children. But it does not seem to be directly relevant to reading success. We have already established that auditory discrimination can be taught. So if articulation (output) does influence input (discrimination), we can compensate for it by effective instruction. The researchable question again is not what causes the condition, but do we have to change it, and if so, how?

Deficits in Language, Syntactical Organization and Cognitive Style: The research on language usage and syntactical organization is confusing on at least four counts. First it is apparent that lower SES underachievers have generally different language habits and syntactical styles than middle class or lower class achievers. But evidence we have collected at the Reading Language Arts Center, Graduate School, Yeshiva University indicates that the differences in language styles are more relative to social context than to SES or even underachievement (15), (2). Second, too much of the research oversimplifies the variables by measuring only the gross factors of SES, ethnolinguistic class and formal measurements of language and syntax. Loban (15), Labov (16) and Cohen (3) have shown that the social context and other contextual cues, such as the examiner or interviewer, seem to be crucial controlling factors of quality and quantity of language production. Research must be designed, therefore, to investigate which contexts, for which people, at which time elicit more formal language usage, for we now know that many users of so-called "non-standard" or restrictive language seem also to have a latent, acceptable formal language that they may not use. Third, we are still faced with the question, what is acceptable language and how do we determine acceptability? Fourth, we are still not sure whether the problem is in the transmitter of nonstandard language patterns or in the middle class receiver.

Now we must ask again, "So What?" If oral language habits are different from the more formal written language, how does this effect reading success? How different must oral language be before reading achievement suffers? Which has more influence on reading achievement, amount and quality of overt oral language usage or amount and quality of latent formal usage that appears to be present in most speakers of so-called "nonstandard" dialect? And finally, how much formal

syntactical demand is put on the beginning primary school reader? Is "Look, Jane! Look" so syntactically demanding of the user of "nonstandard" language that he will fail at his early attempts to read? I doubt it. Yet, that is what the literature suggests when we consider language development a possible causal factor in reading retardation. It is more logical to assume that at the beginning reading stage, oral language usage has far less effect than many people think.

Perhaps one of the most alarming distortions in the area of learning disabilities of disadvantaged children is the possible erroneous conclusion that they are concrete, motoric learners. Webster cites four other sources in addition to the off-the-cuff statement in Riessman's famous book (19). The evidence, frankly, is thin. Our own study of learning disability cases at the Clinic of the Reading and Language Arts Center indicates that most retarded readers, regardless of ethnolinguistic or SES category, tend to attack words visually rather than auditorily. But this is expected in the visually dominant human animal, especially when he lacks phonics. What else can the retarded reader do when he must bust the written code without a sense of phoneme-grapheme relationships? Disadvantaged underachievers may attack learning problems motorically because teachers are taught to teach from higher level inputs to lower level inputs as the student's ability decreases. Or disadvantaged underachievers may be motoric not because they are low SES, but because they are slow learners for whatever reason. The point is, that we ought not to assume that motoric, concrete learning styles, which may be common to slow learners, is a unique characteristic of low SES children. I suspect that average and above average achieving low SES children do not display motoric or concrete styles.

The Effect of Programs on Disadvantaged Children: In general most programs reported in the literature are action programs, usuallly contracted on federal or state funds. That these contracts require pre, post or comparison measurements does not constitute research, and it is unfair to judge these programs on the basis of sound research criteria. Reporting such programs in journals is valuable to educators at all levels for a number of reasons. It gives school people ideas about strategies they might try in their school systems. These reports give university people ideas about what needs to be researched. But we cannot expect a review of literature about these programs to answer the crucial questions that can only be answered by thorough research.

However, some criteria of sound research are consistent with sound education and should be present in programs, whether they are research or service oriented. When we look at most of the compensatory programs in Headstart, elementary and secondary school ESEA projects, we see gross professional

inefficiencies. For example, can we give disadvantaged children a headstart in school by getting them early? We cannot answer this on the basis of the general results of Headstart, because these programs usually did not define the specific operants they wanted to shape. Many programs used measurements that were irrelevant to the treatments. Why, for example, should preschool trips to the boatyard, Coca Cola plant or candy factory effect reading achievement in grade one? What would you expect the Metropolitan Reading Headlines scores to show after five, ten or even twenty such trips? Unless the schools are using secret beginning reading material about Dick, Sally and Spot at the Coca Cola plant or playing with chocolate rudders, we cannot expect any observable payoff in reading. The same fuzzy thinking assumes that a father at home will breed better learners, or the ability to say mother rather than muvver will reap observable payoff in reading achievement, or the shaping of artificial conversation in full sentences (something middle class children or adults rarely do) will propel some ghettoed child through the first three primers.

On the other hand, when the objectives of a program are as carefully defined and delimited as in the Englemann preschool or in the Wheelock-Silvaroli visual (24) and auditory (21) training studies, the results are far more conclusive, transferable and researchable even when the control or comparisen groups are poorly structured.

So much has been written and said about the first and second grade Cooperative Reading Research Projects. Defining specific variables and measuring factors relevant to treatment were less of a problem in these projects than was subtle experimental bias. It may be naive, but it is indefensible for the Office of Education to have allowed so many authors to direct these researches when the projects included their own published programs. This is not a reflection upon the scientific abilities of the researchers, but a criticism of their naivete and audacity.

The Effect of Teachers on Reading Achievement: The Cooperative Reading Research studies once again showed us the power of the teacher. Most of us were not surprised to find a greater difference in pupil reading achievement from teacher to teacher than from one published program to another. But there is a tendency to oversimplify this important finding into something like: "It doesn't matter which method you teach: the teacher's personality is more crucial." Or, "A good teacher can use any method" (Something worth researching if we could agree on what a good teacher is). This oversimplification is a distortion of language. "Personality" is

a term psychologists use to symbolize a collection of specific behaviors. When we talk about a teacher's personality, we should be describing what that teacher does and says to kids in a classroom, which is methodology. But we have great difficulty observing these specific words and actions; so we cover up our sloppy observations with such terms as "personality." Thus, a study comparing Scott Foresman's Basal Reader with Pitman's Initial Teaching Alphabet is not a comparison of teaching methods. It is a comparison of published programs. A comparison of what teachers do and say to kids as they use their respective programs is a comparison of methodology. And this is what needs to be researched.

One of the most important findings in the Cooperative Reading Research Projects was that some reading teachers were successful with the same disadvantaged learners that other teachers were unable to teach. This was independent of published program. Here again we see that direct classroom intervention--pedagogy--is the key to teaching disadvantaged children to read. Not etiology or psychosocial manipulation--not even social revolution--but sound methodology is the key to literacy in the ghetto schools.

The problem for future research is trying to pinpoint exactly what more successful teachers do or say in classrooms that allows them to be more successful than their colleagues. But researchers will not find these variables as long as they stick to such imprecise hypothetical constructs as "warmth-coldness," "permissiveness-restrictiveness," etc. To be sure, these fuzzy teacher characteristics can be reliably measured. But we do not really know what they are. And since we cannot define them operationally, we have little chance of engineering them in teachers.

Conclusions About Research: In human behavior, all good things tend to go together and all bad things do, too. This fact continues to muddy the writings of behavioral and social researchers who seem unable to curb a sort of professional propensity toward perceiving correlated factors as cause and effect relationships. Ironically, these are the same scholars who advise their graduate students to beware of the correlation coefficient. "If the relationship does not make sense in your head, it cannot make sense on the computer print off."

Perhaps this dilemma can be avoided by reversing the compulsion of educational researchers to sneak into the psychosocial world in search of correlated variables that explain etiology of a condition. While it is true that in medicine the etiology is often the key to treatment, it is rarely so in human behavior. And it is almost never true in manipulating educational behaviors.

The belief that etiology of an educational deficit is a key to remediating that deficit is a myth. This is even true when we talk about a child's classroom behavior, his need for adult approval or for male identification. The behaviors that manifest these factors, not the etiology, are the keys to changing these behaviors. It is time for psychologists and educators to recognize that in most cases of individuals or groups of individuals, etiology is usually irrelevant to treatment. We take the organism as it comes; we observe his present behaviors; we manipulate him and the environment to shape new behaviors.

Occasionally, knowledge of etiology is valuable for preventative programs. Preventive is popular table talk among educators, but they are the least capable of all social scientists in preventive procedures. Right now and in the decade to come, millions of children will enter school in a disadvantaged predicament. In case my colleagues in the ivy towers and in the schoolrooms have not gotten the message yet, let me be the first to get it across: The people out there will not wait 50 years for us to pinpoint the psychosocial etiologies. Nor will they wait a second 50 years for us to engineer social change after we discover what needs changing. And they certainly will not risk the possibility that 50 years from now we will discover for sure that the psychosocial road to reading leads to a dead end. They want us to teach their children to read now, and they know it can be done.

The literature on reading disabilities of disadvantaged children does not reveal any new disability factor. The specific disability factors are not unique to these children (5). We have at least 50 years of know-how to deal with these familiar disabilities. What the research does not tell us is how to bridge the gap between this 50 years of educational know-how and classroom practice.

WHERE DO WE GO FROM HERE?

Back to the classroom, I hope. Researchers must immediately design studies of how to change reading pedagogy in large numbers of classrooms quickly. It seems to me that this can be done by designing packages of materials to form pedagogies based on learning psychology which suggests that contingency management is a potent form of shaping behavior. We have plenty of cues about which behaviors must be shaped, but we need packaged materials in cookbook form for two reasons: (1) The teacher must be given a precise technology of teachsing, since teacher training does not provide this. (2) The careful defining of learning objectives will force into the open the fact of tremendous individual student differences no matter how teachers group children. Only sets of

structured materials designed for prescriptive, diagnostic, personalized instruction will allow the typical teacher to handle this diversity of needs.

Now the researcher enters in search of correlated factors that might be clues to cause and effect. But his research is limited to the school domain, since 9 a.m. to 3 p.m. within the school building is a manageable piece of time and space. The home and community over a decade is not manageable. If we find that machine controlled feedback to the student is more effective than student controlled feedback, we can do something about it. But there is very little we can do or even should do about oral articulation being shaped in the home. That is the home's prerogative, and as an old Bostonian, I would resent any educator interfering with my shaping of my child's broad a. In my house it will be tuber and Cuber not tuba and Cuba. You dig me, man?

The usual flaws in research design must be avoided. Rather than control and experimental treatments, for example, we must use comparison treatments. We can use the residual gain scores technique (23) to control for regression toward the mean. We must be careful to measure precisely what we purport to change in our treatments. It is certainly legitimate to use original tests as long as we validate them reasonably well by defining precisely what the tests do, in fact, measure. In most treatment designs, test reliability is not a problem unless we suspect variation in one direction.

In addition to pedagogical treatments, we must try to isolate the specific operants that discriminate good, from mediocre, from poor teachers. We must avoid the usual fuzzy personality types and try to pinpoint the exact behaviors that make some teachers more effective than others. Video tape may help us in this type of research. The next step is to covary teacher behaviors, pedagogical treatment and student characteristics. The specific student behavioral deficits and strengths in reading matched to teacher characteristics can produce a whole new concept in pedagogy. Certainly this is more challenging than Quixotic forays into the noise level of crowded tenement rooms.

CONCLUSION

Only in the last half decade have the learning deficiencies of disadvantaged children become a national issue. Perhaps that is because these deficiencies have finally paid off in broken plate glass, burnt out slums, stolen TV sets, and 32 National Guard bullets that turned young Jimmy Rutledge of Newark, New Jersey into a bloody pulp. Now suddenly, it's a national crisis, and we educators must share the guilt for the impending disaster, whether it is because we continue to ask the wrong research questions or because we refuse to implement 50 years of pedagogical know-how in our classrooms.

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